

WILDFIRE IMPACTS ON OZONE AT THE EL PASO UTEP CAMS 12 MONITOR ON JUNE 21, 2015: ANIMATIONS

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USING A PHOTOCHEMICAL MODEL TO ESTIMATE GROUND LEVEL OZONE IMPACTS OF WILDFIRES

- Two CAMx photochemical model runs were made for June, 2015. The two runs were identical except:
 - One CAMx run with fire emissions
 - One CAMx run without fire emissions
- The difference in ozone between the two runs, (*CAMx ozone with fire emissions* – *CAMx ozone without fire emissions*), is the ozone impact of the fire emissions
- Animations of the ground level ozone impact of the fire emissions are shown in slides 3 and 4 for the 4 km domain focused on El Paso and the 12 km regional modeling domain, respectively
- The animations show a broad plume of ground level ozone generated by fire emissions affecting the El Paso area on June 21

RAMBLA

Content slide

CONCLUSIONS

- The CAMx results indicate that winds transported ozone generated from fire emissions to CAMS 12 and enhanced ground level ozone relative to what it would have been in the absence of fires
 - The CAMx results establish a clear causal relationship between regional fire emissions and enhanced ozone and particulates at CAMS 12 on June 21, 2015
- The modeling and the ambient data analysis tell a consistent story of widespread fire activity in CA, AZ and NM contributing to a regional pollution episode, with fire emissions causing ozone at CAMS 12 to be higher than it would otherwise have been

RAMBL

UNCERTAINTY IN CAMX MODEL RESULTS

- Given its underestimate of CAMS 12 peak 1-hour ozone on June 21, the CAMx model cannot be used make a quantitative determination of the magnitude of fire impacts at CAMS 12
- Uncertainties in photochemical modeling ozone impacts of fire emissions:
 - Characterization of fire emissions
 - Chemistry of fire plumes
 - Transport of fire plumes

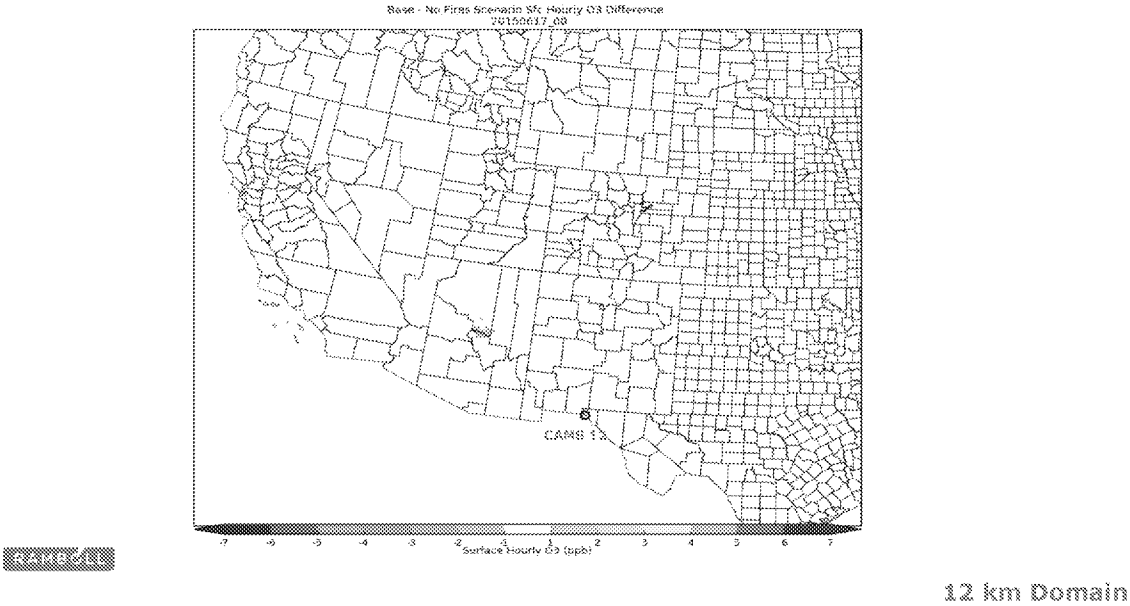
TABLE 3

HOW TO RUN THE ANIMATION

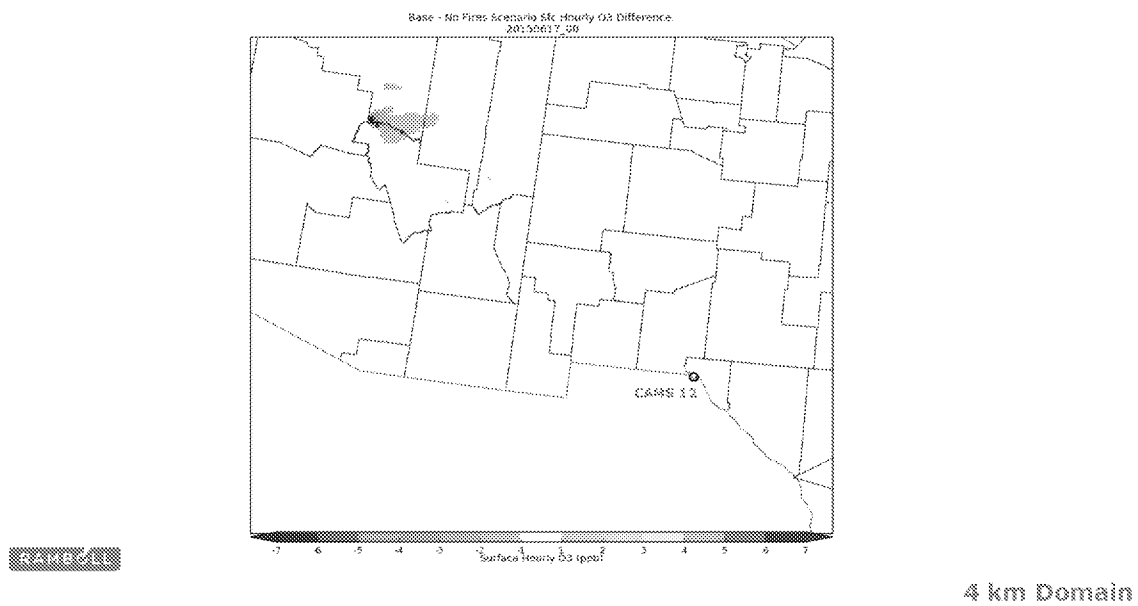
- Move your cursor to the bottom of the figure
- A control bar will appear under the contour color bar
- Start/stop the animation by clicking on the arrow at the left of the control bar
- The smaller arrows on the right of the control bar can be used to step through the animation frame by frame
- Regions colored green and red show where fire emissions increased ground level ozone, while blue regions show where fire emissions decreased ground level ozone
- There is a time stamp at the top of each animation frame: 20150617_03
 - ◊ YearMonthDay__Hour
- Observed fire locations on June 21 are shown in Figure 6 for comparison

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Impact of Fire Emissions on Ground Level Ozone: June 17-22

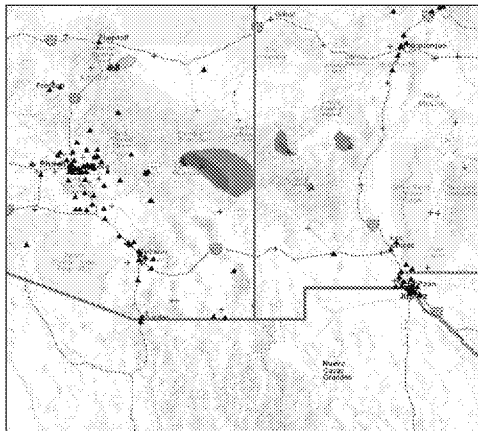


Impact of Fire Emissions on Ground Level Ozone: June 17-22

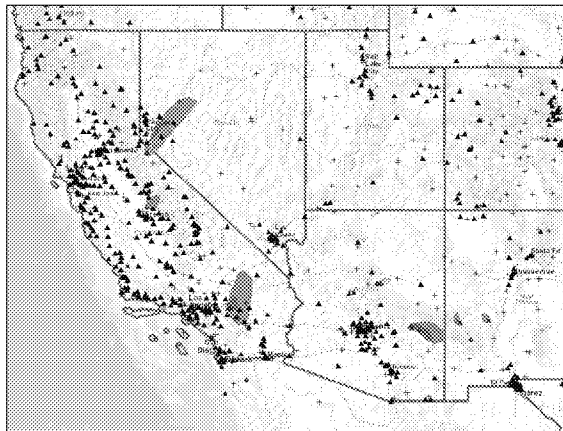


OBSERVED FIRE LOCATIONS: JUNE 21, 2015

HMS Fire and Smoke: 4 km Domain



HMS Fire and Smoke: 12 km Domain



- NOAA Hazard Mapping System satellite-derived fire and smoke locations

Fire/smoke location figures developed using online tools at Airnowtech.org